

**Horizontal Gate Arm Pumping Operation:**

After a gate arm has been knocked off (refer to Gate Arm Knocked Off Operation) the gateless counterweight assembly will rest anywhere from 50 to 80 degrees vertical. After a crossing system commands the gate to raise to vertical, the EGM relays energize, the 3597 goes into normal gate up operation and the motor powers the mechanism to vertical position. When a gate down command is received from the crossing control system, the counterweight assembly may oscillate (pump) towards the horizontal position.

The gateless counterweight assembly powers down until the #1 normally closed power down contact opens. When the contact opens, the counterweights begin to descend the #1 normally closed contact closes again and repowers the unit. This series of events continuously repeats. Each time a pulse of voltage is received at the motor, a certain amount of the voltage is stored within the EGM. When the stored voltage reaches a threshold, the EGM de-energizes its relays, the green LED will go dark, the pumping ceases and the gateless counterweight assembly comes to rest. The assembly will remain in this position until the EGM receives a pulse of 12 vdc positive voltage at the reset wire lead, created by a gate up command sent from the external crossing control systems, or the manual reset button located on the EGM is depressed. When reset the green LED illuminates. The mechanism then goes into normal gate up operation and the motor powers the mechanism to the vertical position.

**Gate Hang-Up Failure Operation:**

If for any reason the gate arm becomes obstructed while clearing power is applied to the motor, after a period of time the EGM will de-energize its relay to prevent electrical component burn-up. When power is applied to the motor, a certain amount of the voltage is stored within the EGM. When the stored voltage reaches a threshold, the EGM de-energizes its relays, the green LED goes dark and power is removed from the motor. If the gate has been obstructed while traveling from the horizontal to vertical position, the hold clear device is energized. When the EGM removes motor power and the hold clear is energized, the gate will rest at the point which power was removed from the motor. If the gate has been obstructed by vandals hanging on the gate, the gate will rest at the position it was in when the EGM de-energized. If the gate is obstructed by a light unit or information sign which has been moved from normal position or by a misaligned hi-wind bracket, the gate will rest the position it was in when the EGM de-energized. Once a gate down command is received from the crossing control system, the gate will gravity down to the horizontal position, if the obstruction is not such as to hold the gate arm in the obstructed position. Once a gate up command is received from the crossing control system, the gate will operate to the vertical position as normal, or if the obstruction still exists, the hang-up sequence will repeat.

If the gate rests in a traffic obstruction position, it is possible to manually raise the gate to higher position by walking the gate up by hand. The gate will then hold in the repositioned location.

**EGM Operation Annunciation:**

Whenever the EGM de-energizes due to any of the described fault events, and the user has connected the EGM to external logic or recording devices, the auxiliary relay contacts will transfer and send an indication to the external device that a fault has been controlled.

The green LED will be dark when the EGM is in the fault mode. When reset, the relays energize and the green LED illuminates.